

Infrastructure Asset Evaluation



**Brevard County Utility Services
Department
July 2013**

Introduction

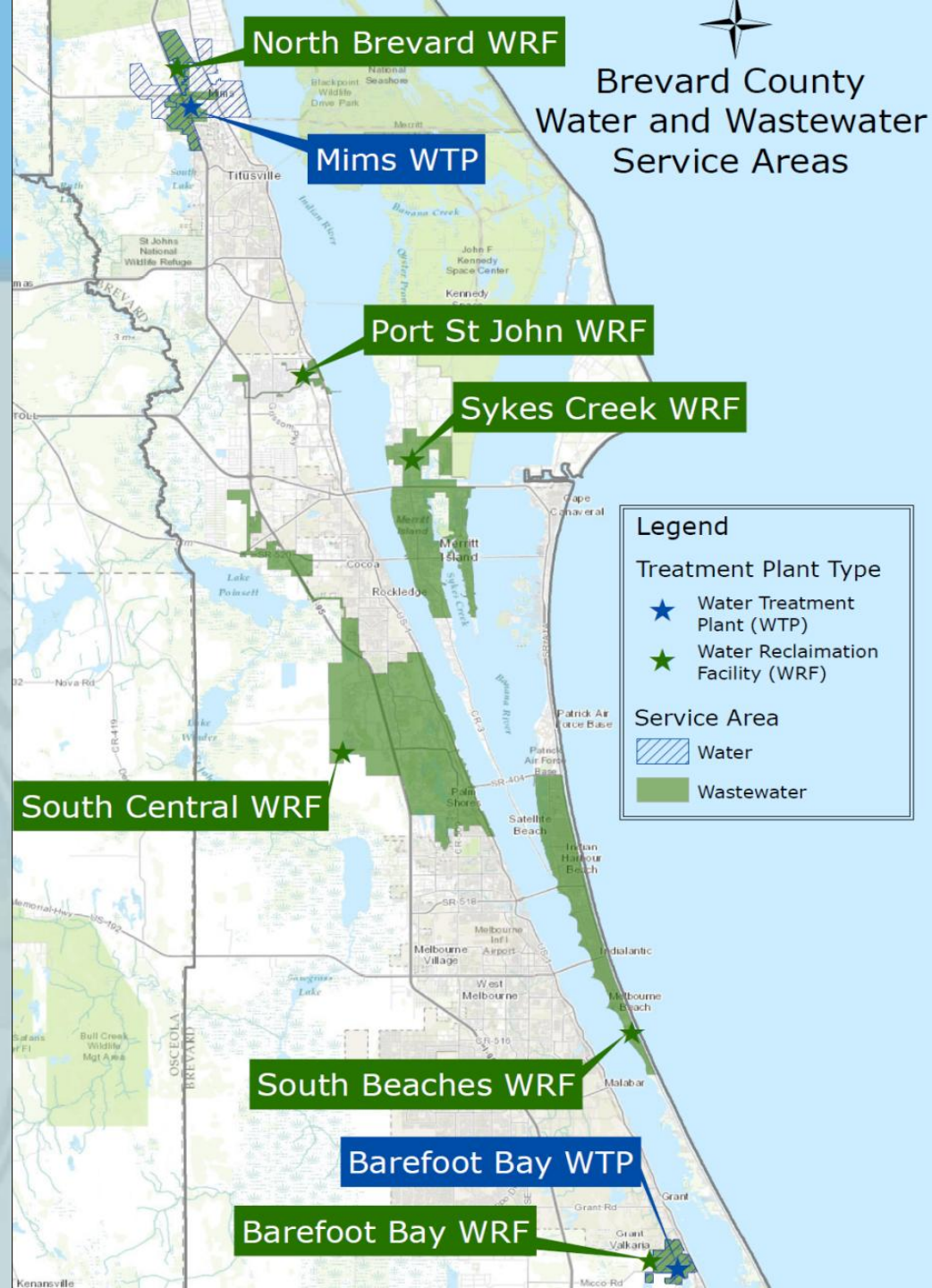
- Five-Month infrastructure evaluation
December 2012 through April 2013
- First comprehensive assessment of
plants and systems in 25 years
- Six professional engineering firms
working together with Brevard County
Utility Services Department
- Follows recent internal audit
highlighting backlog of renewal and
replacement needs

Objectives

- Provide accurate county-wide physical assessment of plants and systems supported by documentation and records
- Compile and prioritize a list of required capital improvement projects and renewal and replacement items
- Develop the corresponding costs for current and future needs in the system
- Establish methods to fund program

Water and Wastewater Service Areas

- 70,500 Wastewater Equivalent Residential Connections
- 8,236 Water Equivalent Residential Connections



Capital Improvements

North Brevard (Mims) Water System

- Treatment plant and distribution system 35 years old
- Sufficient capacity
- Items requiring rehabilitation or replacement
 - Plant components
 - Water supply wells
 - Asbestos-cement and thin-walled PVC pipes



Replace High-Service Pumps
Cost = \$842,000

Multiple Well Facility Replacements
Cost = \$1,789,000

Capital Improvements

North Brevard (Mims) Water System

Years	Total Costs
2014-23 Subtotal	\$ 8,788,000
2024-33 Subtotal	\$ 3,036,000
Totals	\$ 11,824,000



Capital Improvements

North Brevard Wastewater System

- Treatment plant and collection system are 27 years old
- Sufficient capacity
- Items requiring rehabilitation or replacement
 - Plant components
 - Lift stations and force mains
 - Gravity sewer pipe



Replace existing
Surface Aerators/
Process Control
Cost = \$721,000



Lift Station N-3
Replacement
Cost = \$410,000

Capital Improvements

North Brevard Wastewater System

Years	Total Costs
2014-23 Subtotal	\$ 5,107,000
2024-33 Subtotal	\$ 1,269,000
Totals	\$ 6,376,000



Capital Improvements

Port St. John Wastewater System

- Treatment plant and collection system are 35 years old (relocated used plant)
- Sufficient capacity for defined service area
- Items requiring rehabilitation or replacement
 - Plant - dilapidated, FDEP comments
 - Lift stations and force mains
 - Asbestos-cement and cast iron sewer pipe



Lift Station J-02
Replacement
Cost = \$628,000

Replace existing WWTP
Cost = \$2,500,000
Investigating Options

Capital Improvements

Port St. John Wastewater System

Years	Total Costs
2014-23 Subtotal	\$ 5,214,000
2024-33 Subtotal	\$ 1,726,000
Totals	\$ 6,940,000



Capital Improvements

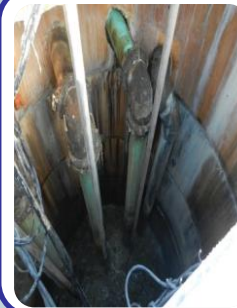
Sykes Creek Wastewater System

- Treatment plant and collection system are 28 years old
- Sufficient capacity
- Items requiring rehabilitation or replacement
 - Plant headworks
 - Lift stations and force mains
 - Gravity sewer pipe
 - Headworks building



Replace
Headworks
Screening and Grit
Removal

Cost = \$1,710,000



Lift Station C-18
Upgrades

Cost = \$330,000



Lift Station M-20
and Generator
Replacement

Cost = \$618,000

Capital Improvements

Sykes Creek Wastewater System

Years	Total Costs
2014-23 Subtotal	\$18,168,000
2024-33 Subtotal	\$ 338,000
Totals	\$ 18,506,000



Capital Improvements

West Cocoa

- Items requiring rehabilitation or replacement
 - Lift stations in poor condition
 - Collection system in poor condition
 - Deteriorated manholes
 - Vitrified clay gravity sewer piping
 - Asbestos cement force mains



Lift Station W-08
Cost = \$417,000

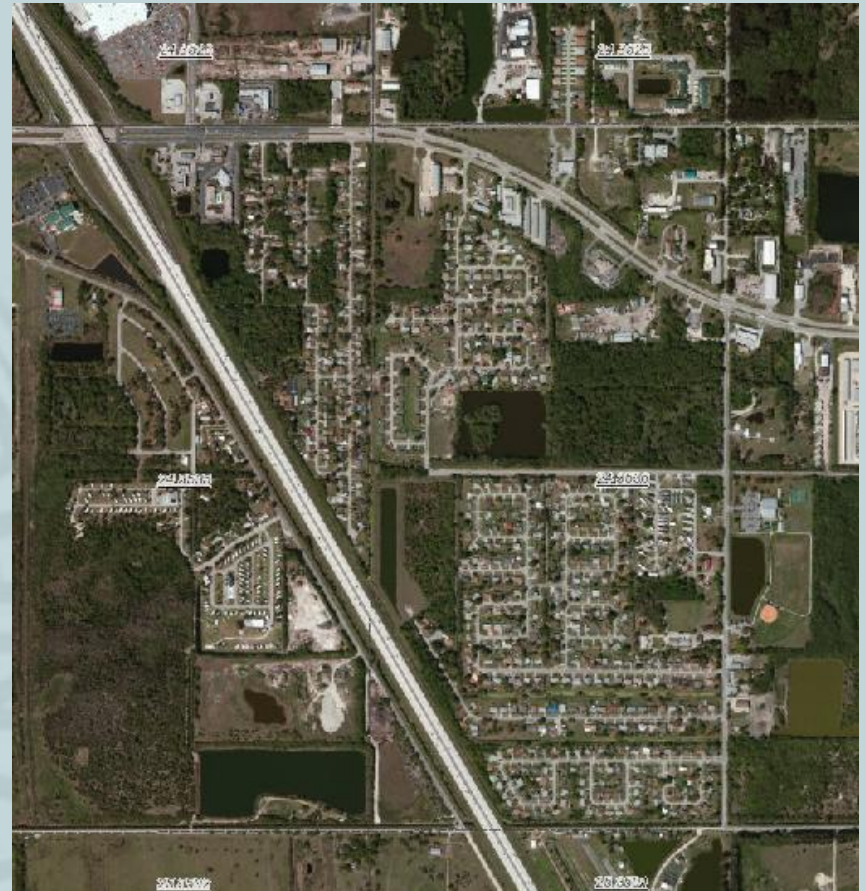


Lift Station W-15
Cost = \$634,000

Capital Improvements

West Cocoa Wastewater System

Years	Total Costs
2014-23 Subtotal	\$8,195,000
2024-33 Subtotal	\$0
Totals	\$8,195,000



Capital Improvements

South Central Wastewater System

- Treatment plant and collection system are 27 years old
- Capacity challenges - need for 50% plant expansion by 2018 to support growth
- Items requiring rehabilitation or replacement
 - Current plant components
 - Grease-septage pretreatment system
 - Lift stations (60 including several major re-pump stations) and force mains



Supplemental Aeration/Process Control

Cost = \$750,000



Replace Grease-Septage Pretreatment System

Cost = \$1,400,000

Capital Improvements

South Central Wastewater System

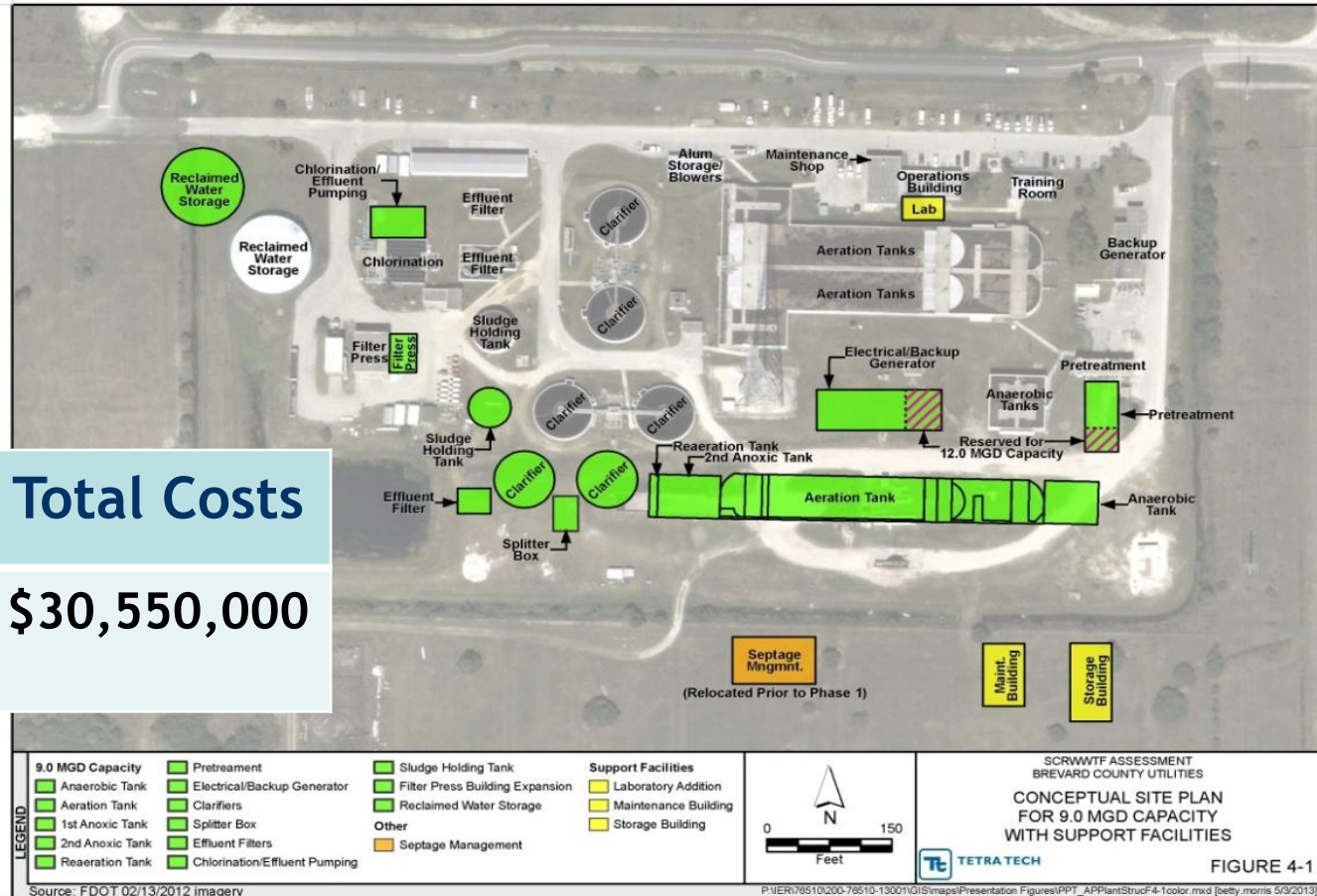


Years	Total Costs
2014-23 Subtotal	\$17,921,000
2024-33 Subtotal	\$ 6,120,000
Totals	\$ 24,041,000

Capital Improvements

South Central Wastewater Plant Expansion

5.5 MGD to 9.0 MGD



Years	Total Costs
2014-17 Total	\$30,550,000

Capital Improvements

South Beaches Wastewater System

- Portions of treatment plant and collection system 44 years old - Highly corrosive environment
- Sufficient capacity for defined service area
- Items requiring rehabilitation or replacement
 - Treatment plant components
 - High pressure force main trunkline pipe issue
 - Lift stations, force mains, and gravity sewer*



Influent Structure and Screening Improvements

Cost = \$1,400,000



Lift Station S-7 Replacement

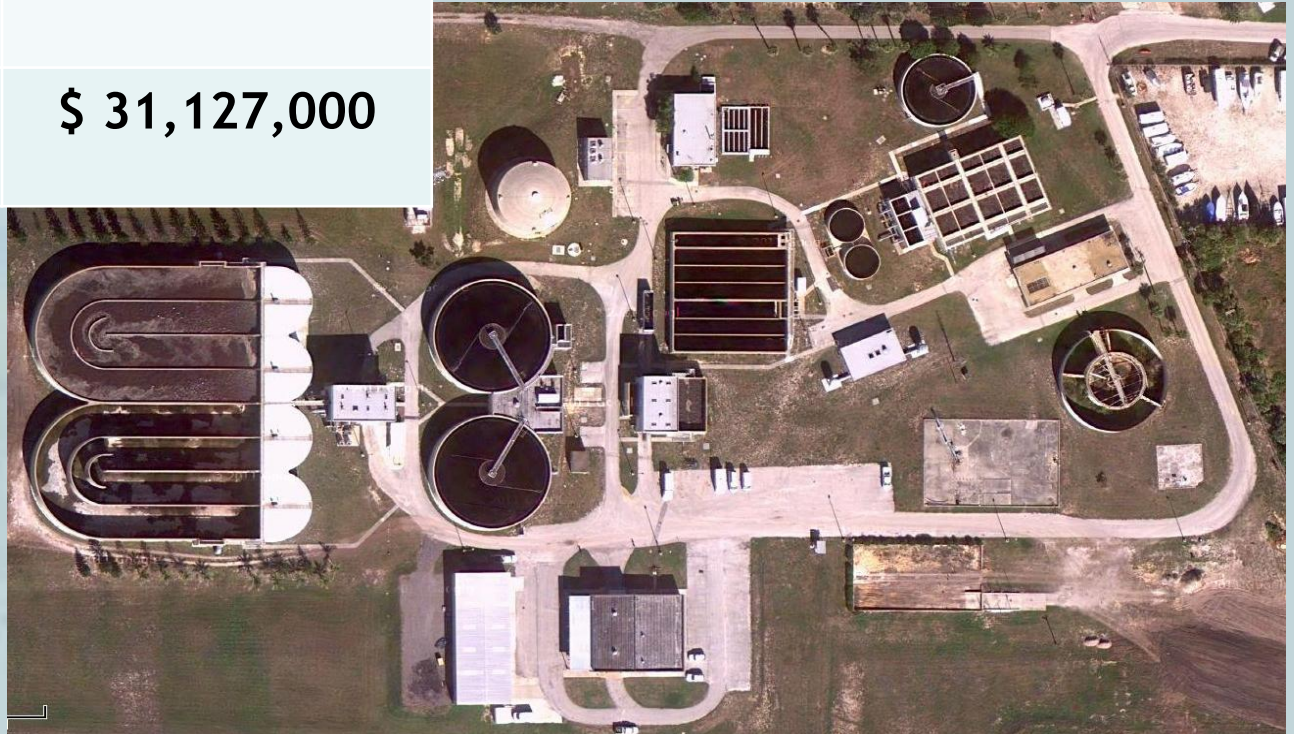
Cost = \$300,000

*Collection system infiltration and inflow (I&I) leaks causing higher flows; I&I being evaluated. Ongoing program.

Capital Improvements

South Beaches Wastewater System

Years	Total Costs
2014-23 Subtotal	\$27,362,000
2024-33 Subtotal	\$ 3,765,000
Totals	\$ 31,127,000



Renewal and Replacement

County System-Wide

- Inflow and Infiltration (I&I) causes capacity and overflows issues. Leaking pipes need to be re-lined.
- Lift station telemetry needs upgrading in 80 lift stations
- Lift station control panel upgrades in 24 stations
- Estimated 100 force main valves require replacement



Collection system inflow and infiltration (I&I), causing higher flows



Lift Station Telemetry Modernization



Lift Station Control Panel Modernization

Renewal and Replacement

County System-Wide

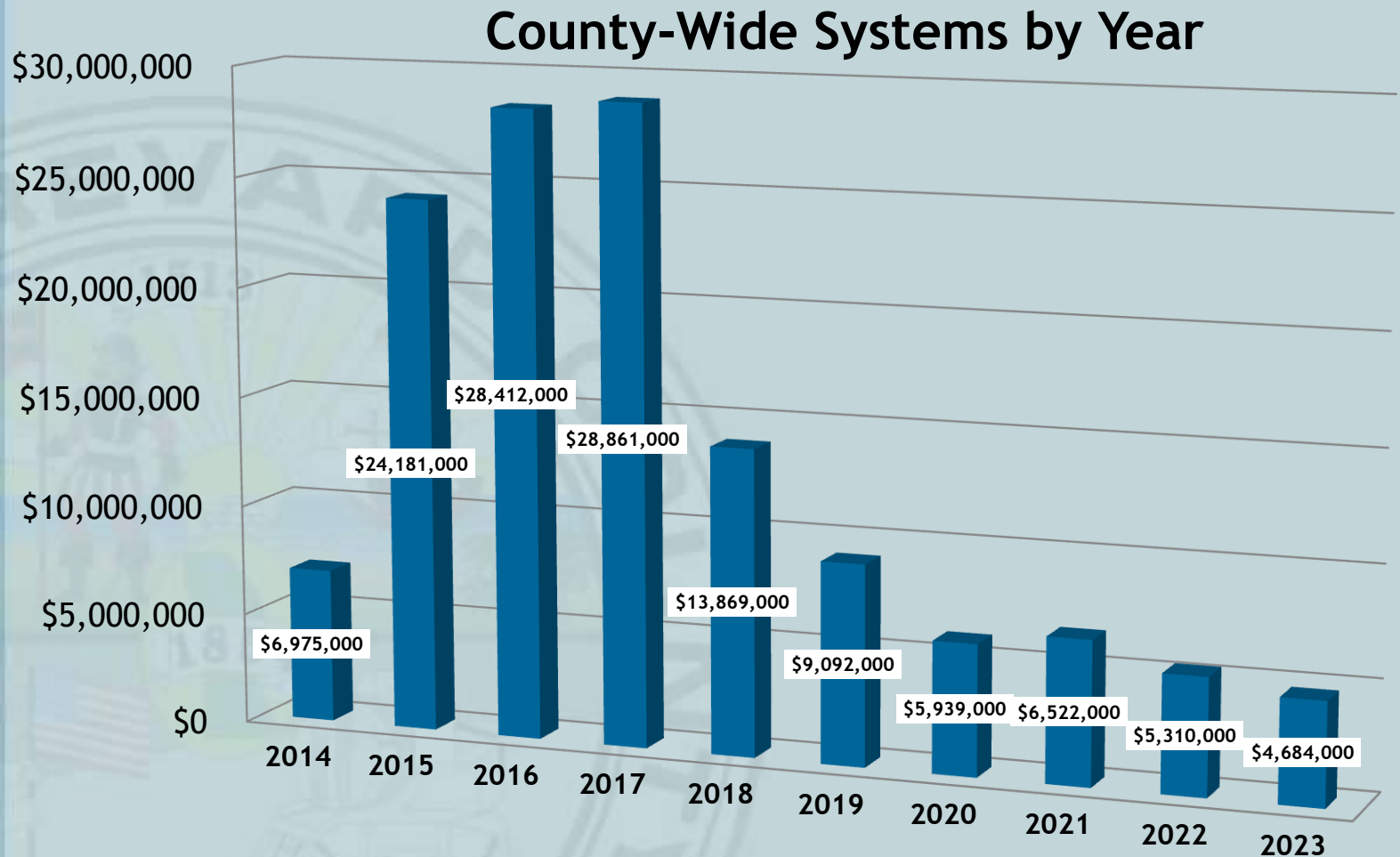
Years	Total Costs
2014-23 Subtotal	\$12,540,000
2024-33 Subtotal	\$ 8,023,000
Totals	\$ 20,563,000



Brevard County Utility Services 20 Year Capital Improvements

	Infrastructure Needs	2014-2023	2024-2033	Cost (Dollars)
1	Capital Improvement Projects - Specific	\$ 90.8 Million	\$16.3 Million	\$110.2 Million
2	County -Wide R&R Projects (I&I, Lift Station Telemetry and Control Panels, System Valves)	\$ 12.5 Million	\$ 8.0 Million	\$ 20.5 Million
3	South Central WWTP Expansion	\$ 30.5 Million	--	\$ 30.5 Million
	Total Costs	\$133.8 Million	\$24.3 Million	\$158.1 Million

Brevard County Utility Services Capital Needs for Next 10 Years



Capital Improvements

Barefoot Bay(Water/Sewer District) Water System

- Treatment plant is 34 years or older
- Sufficient capacity for defined service area
- Items requiring rehabilitation or replacement
 - Plant components
 - Water supply wells
 - Water storage and distribution: high service and booster pumps

Replace Filter Control Panel
Cost = \$188,000



Conversion to Liquid Bleach instead of Chlorine Gas
Cost = \$100,000

Replace Booster Pumps (4) and Valves
Cost = \$175,000

Capital Improvements

Barefoot Bay Water System

Years	Total Costs
2014-19	\$ 1,349,000
Total	\$ 1,349,000



Capital Improvements

Barefoot Bay Wastewater System

- Treatment plant and collection system are 43 years old; East ring steel plant replaced in 2012
- Sufficient capacity for defined service area
- Items requiring rehabilitation or replacement
 - Plant wide control and SCADA system
 - Lift stations
- Annual renewal and replacement - I&I

Replace WWTP SCADA System
Cost = \$455,000

Rehabilitate X-15, X-16, and X-17
Snug Harbor Lift Stations
Cost = \$85,000 each

Capital Improvements

Barefoot Bay Wastewater System

Years	Total Costs
2014-19	\$ 1,076,000
Total	\$ 1,076,000

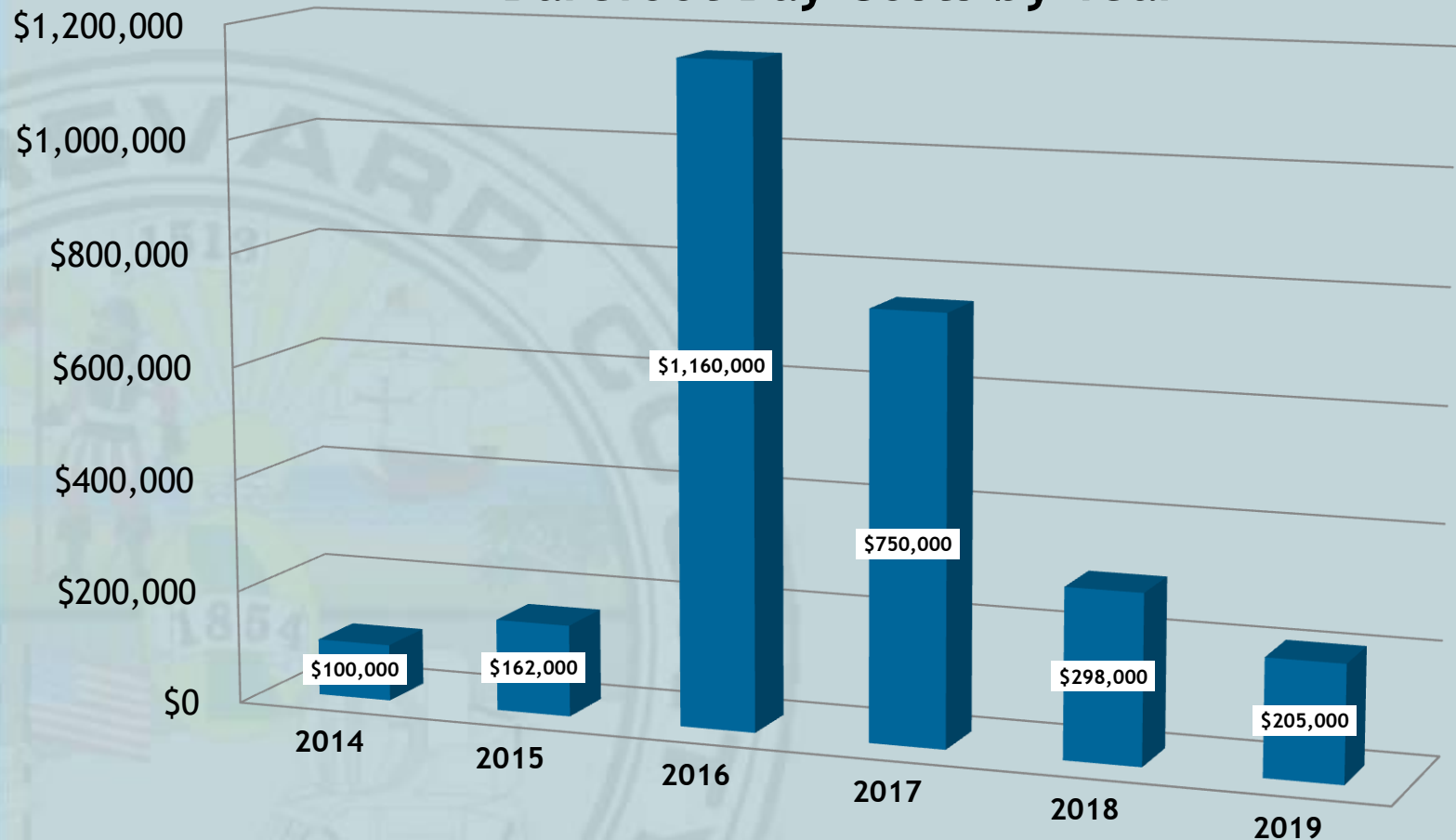
Annual Renewal and Replacement (I&I)

Years	Total Costs
2014-19	\$ 250,000
Total	\$ 250,000



Capital Costs

Barefoot Bay Costs by Year



Summary

- Most existing water and wastewater systems are more than 25 years old
- Infrastructure assessment identified capital project requirements with a high degree of accuracy
- Systems need \$12 M/Yr - \$14 M/Yr improvements for the next 10 years
- Prudent and comprehensive program is strongly recommended to address issues